Workshop for young scientists with research interests focused on physics at FAIR



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## Identified hadron multiplicity fluctuations at the CERN SPS

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The study of event-by-event fluctuations of chemical (particle type) composition in high-energy nucleus-nucleus collisions is a helpful tool to pin-down the properties of strongly interacting matter. Indeed, according to theoretical calculations, the QCD critical point may be signalled by a characteristic pattern in the measured fluctuations. In this contribution a new method for event-by-event fluctuations of identified particles will be introduced. In particular, using this method, the energy dependence of multiplicity fluctuations in central Pb+Pb and proton-proton collisions, measured by NA49 and its successor NA61/SHINE, will be presented. Furthermore an outlook on the NA61/SHINE program will be given.

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